DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP

2101 L Street NW • Washington, DC 20037-1526
Tel (202) 785-9700 • Fax (202) 887-0689

Writer's Direct Dial (202) 828-2265

E-Mail Address PaperL@dsmo com

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

February 3, 2004

By Hand

Ex Parte Communication

Marlene Dortch, Secretary
Federal Communications Commission
Room TWB-204
445 12th Street, SW
Washington, D C. 20554

Re·   IB Docket No. 00-248

Dear Ms Dortch:

Enclosed please find a copy of a letter along with an attachment that was hand delivered today to Thomas S. Tycz, Chief of the Satellite Division of the International Bureau.

Sincerely,

DICKSTEIN SHAPIRO MORIN
& OSHINSKY LLP

Attorneys for Aloha Networks, Inc.

By:_____
        Lewis J. Paper

Enclosures
cc: Karl Kensinger (w/enc.)
        John Martin (w/enc.)
        Robert Nelson (w/enc)
        Bruno Pattan (w/enc.)
        Frank Peace (w/enc.)
        Andre Rausch (w/enc.)
        Steven Spaeth (w/enc.)
        Gene Cacciamani (w/enc.)
        Steve Hester (w/enc.)
        Jacob S. Farber (w/enc.)

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1177 Avenue of the Americas • New York, NY 10036-2714
Tel (212) 835-1400 • Fax (212) 997-9880
www DicksteinShapiro com

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February 3, 2004

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

VIA HAND DELIVERY

Thomas S. Tycz, Chief
Satellite Division
International Bureau
Federal Communications Commission
Room 6-A665
445 12th Street, SW
Washington, DC 20554

Re. IB Docket No. 00-248

Dear Mr. Tycz:

The purpose of this letter is to provide the attached proposed draft of Aloha Networks, Inc ("Aloha") for revisions to Section 25.134(a)(1) of the Commission's rules along with a related explanation

The attached draft is a product of a meeting between representatives of the Commission and Aloha on November 13, 2003 (which was reflected in an *ex parte* communication timely filed with the Secretary's office on November 14, 2003). At that meeting, the discussion focused on ways in which the Commission could account for different capabilities of different multiple access systems used by VSAT networks.

Representatives of Aloha are available to discuss the attached proposal if you or your staff have any questions

In the meantime, a copy of this letter and the attachment are being filed this same day with the Secretary's office for inclusion in the record of the above-referenced proceeding.

Sincerely,

DICKSTEIN SHAPIRO MORIN &
OSHINSKY, LLP
Attorneys for Aloha Networks, Inc.

By: _____
Lewis J. Paper

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Thomas S. Tycz, Chief
February 3, 2004
Page 2

LJP/klw
Enclosures
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        Steve Hester (w/enc.)
        Jacob S Farber (w/enc.)

ALOHA NETWORKS, INC.
IB Docket No. 00-248
February 3, 2004

PROPOSED SECTION 25.134(a)(1)

The first sentence of Section 25.134(a)(1) is revised in its entirety to read as follows:

(a)(1)(ı) All applications for VSAT service in the 12/14 GHz band that meet the following requirements will be routinely processed:

(A) the maximum outbound satellite EIRP spectral density ("ESD") shall not exceed +6 0 dBW/4kHz; and

(B) the maximum Hub EIRP shall not exceed 78.3 dBW; and

(C) the maximum ESD at the adjacent satellite for the entire network of earth stations shall not exceed 8.6 dBW/4kHz = -14 + [29-25 Log (2.2-0.4)]: provided, that (I) the foregoing ESD shall not be exceeded by more than (x) 10ms intervals 1.0% of the time or (y) 100ms intervals 0.1% of the time; (II) the ESD shall be calculated by adding the Power Spectral Density ("PSD") for each terminal with the adjacent satellite antenna gain for each terminal; and (III) for networks with multiple simultaneous transmissions, the probability of simultaneous transmissions must be calculated to ınsure that the ESD is not exceeded more frequently than specified in clauses (I)(x) or (I)(y)

(ıı) The application shall include a calculation reflecting the addition of the PSD for each terminal along with the terminal antenna gain at the adjacent satellite. The offset angle used to determıne the adjacent satellite antenna gain should be 2.2 degrees minus the pointing error. For networks with automatic systems for monitoring antenna pointing, the pointing error shall be the desıgn threshold of those systems. For networks without automatic systems for monitorıng antenna poınting, a Gaussian distribution of poınting errors wıth variance of 0.4 degrees wıll be assumed.

(ııi) For networks with simultaneous transmıssions, a calculatıon of the probability of simultaneous transmissions shall be included ın the applıcation to show that the ESD is not exceeded more frequently than specıfied ın clauses (a)(1)(i)(A) or (a)(1)(i)(B). The calculation of that probabılity should be determined in accordance wıth the following formula: $P(G,k)=(G^k)/k!*\exp(-G)$, where $P(G,k)$ is the probabılıty of k simultaneous transmissions and G ıs the average number of sımultaneous transmissions [number of transmitted packets per packet time] In accordance with the foregoıng formula, the maximum number of simultaneous transmissıons predicted for the 1%(for 10ms transmıssions) and 0.1% (for 100ms transmissions) probabılıties must be determined and reflected in the application. The terminal ESD must be at least 10Log (maximum number of simultaneous transmissions) below 8.6 dBW/4kHz to ensure that the maxımum ESD of 8.6 dBW/4kHz is not exceeded more frequently than specified in clauses (a)(1)(i)(A) or (a)(1)(ı)(B).

(iv)   Networks with automatic antenna pointing systems will not require professional installation and will not be required to satisfy the antenna performance standards of 25.209(a)(1).

(v) For networks without automatic antenna monitoring systems and with a terminal ESD reduction greater than or equal to 5 dB, (A) professional installation will not be required and (B) the antenna must either have a starting angle for the 29-25Log (theta) antenna sidelobe requirement of Section 25.209(a)(1) of theta = 1.8 (=2.2-0.4) degrees or have a gain at 1.55 degrees that exceeds the gain at 1.8 degrees by an amount less than or equal to the terminal ESD backoff (in which case the application need not demonstrate satisfaction of the antenna performance standards of Section 25.209(a)(1)).

(vi) For networks without automatic antenna monitoring systems and with a terminal ESD reduction of less than 5dB, (A) professional installation is required and (B) the starting angle for the 29-25 log (theta) antenna sidelobe requirement of 25.209(a)(1) will be theta = 1.55 (=2.2-.65) degrees*

(vii) Each application for digital and/or analog VSAT network authorizations in the 12/14 GHz bands proposing to have an ESD in excess of those specified in subsection (a)(1) of this section must comply with the procedures set forth in §25.220 of this Chapter

The second sentence of Section 25.134(a)(1) (beginning "All applications. . .") should be renumbered as subsection (2), and the other subsections of Section 25.134(a) should be renumbered accordingly.

* This 5 dB is the increase in adjacent satellite interference that 10 % of the antennas (with 65 degrees pointing error) would generate in a Gaussian distributed network with variance of 0.4 degrees. The selection of the 0.65 degree pointing error is determined by a calculation using the Complimentary Error Function, which is as follows: 0.010= Erfc(1.15) = Erf(0.65/0.4/sqrt(2)). The 0.65 degrees corresponds to an increase of adjacent satellite antenna gain of over 5 dB for a typical antenna with a 29-25log (theta) response starting at 1.8 degrees (0.75m elliptical antenna.)

2

Appendix A: Sample Calculations

Illustrative calculations are shown below for the three circumstances:

(1) Spread Aloha Multiple Access ("SAMA") with 0.75m Elliptical Antenna

(2) SAMA with 0.6m Circular Antenna

(3) Narrowband TDMA with 0.75m Elliptical Antenna

None of the foregoing network system employs an automatic antenna pointing system. Accordingly, the professional installation and antenna sidelobe starting angle requirements are determined by the terminal ESD backoffs.

Since the ESD backoffs exceed 5 dB for the SAMA networks, professional installation is not required in those situations. In the SAMA network with the 0.75m elliptical antenna, the 29-25 log (theta) response starts at 1.8 degrees; therefore, the sidelobe requirements of paragraph (v)(B) are satisfied. In the case of the 0.6m circular antenna, the antenna gain is at 1 55 degrees, which is only 2 dB above the antenna gain at 1.8 degrees. Therefore, the sidelobe requirements of paragraph (v)(B) are satisfied in that situation as well.

Only a 3 dB terminal backoff is required for the narrowband TDMA network; therefore, unless the terminal ESD is backed off an additional 2dB, professional installation would be required for that network and the antenna 29-25Log (theta) sidelobe gain must start at 1.55 degrees to satisfy the sidelobe requirements of paragraph (v)(B).

For information purposes, the power limit (into the antenna) for 128 ksps terminals have also been calculated. Since the SAMA terminals' power is spread over 2 MHz, greater power is available for these terminals, resulting in higher reliability links.

		SAMA 0 75m	SAMA 0 6m	TDMA
Network ESD	dBW/4kHz	8 6	8 6	8 6
Pointing Error	Degrees	0 4	0 4	0 4
Antenna Size	meters	75 ellipt	6 circular	75 ellipt
Antenna Adj Sat Gain	dBi	22 6	30 3	22 6
Req Net PSD	dBW/4kHz	-14 0	-21 7	-14 0
Network Load G	pkts/pkt time	3 2	3 2	0 38
Probability of >=k simultaneous transmissions				
10LOG(k)	k			
	0	100 00%	100 00%	100 00%
0 0	1	95 92%	95 92%	31 61%
3 0	2	82 88%	82 88%	5 63%
4 8	3	62 01%	62 01%	0 69%
6 0	4	39 75%	39 75%	0 06%
7 0	5	21 94%	21 94%	0 00%
7 8	6	10 54%	10 54%	0 00%
8 5	7	4 46%	4 46%	0 00%
9 0	8	1 68%	1 68%	0 00%
9 5	9	0 57%	0 57%	0 00%
10 0	10	0 18%	0 18%	0 00%
10 4	11	0 05%	0 05%	0 00%
10 8	12	0 01%	0 01%	0 00%
11 1	13	0 00%	0 00%	0 00%
11 5	14	0 00%	0 00%	0 00%
kmax s t P(k>kmax) > 1%		8	8	2
Req. Terminal PSD Back-off		9.0	9.0	3.0
Prof Inst Required?		NO	NO	YES
Req Term PSD	dBW/4kHz	-23 0	-30 7	-17 0
Power Limit for 128 ksps	dBW	4 0	-3 7	-4 9